

## CLAIMS:

1. Solar energy powered lamp driver (100; 200) capable of driving a gas discharge lamp (L), comprising:
  - a half-bridge inverter (130), comprising:
    - a first branch of two controllable switches (131, 132) coupled in series between a first  
5 reference node (V1) and a second reference node (mass);
    - a second branch of two buffer capacitors (133, 134) coupled in series between said first reference node (V1) and said second reference node (mass);
    - an output branch (DE) connected between on the one hand a first node (D) between said two controllable switches (131, 132) and on the other hand a second node (E) between said  
10 two buffer capacitors (133, 134);
    - a boost converter (110), having an output (115) connected directly to said first node (D) between said two controllable switches (131, 132).
2. Driver according to claim 1, wherein the output branch (DE) comprises a  
15 series arrangement of a lamp (L) output, a decoupling capacitor (135) and an inductor (136).
3. Driver according to claim 1, wherein the output branch (DE) comprises a series arrangement of an inductor (137) and an AC mains input/output (138).
- 20 4. Driver according to claim 1, wherein the output branch (DE) comprises a first series arrangement of a lamp (L) output, a decoupling capacitor (135) and an inductor (136), and also comprises a second series arrangement of an inductor (137) and an AC mains input/output (138), said second series arrangement being connected in parallel to said first series arrangement.
- 25 5. Driver according to claim 4, wherein a switch controller (140) is adapted to drive said two switches (131, 132) at a switching frequency well above a mains frequency, preferably at a switching frequency not lower than 20 kHz, more preferably at a switching frequency in the order of 40-50 kHz.

6. Driver according to claim 5, wherein said decoupling capacitor (135) has a relatively large impedance for the mains frequency and a relatively low impedance for the switch operating frequency.
- 5 7. Driver according to claim 5, wherein said inductor (137) has a relatively high impedance for the switch operating frequency and a relatively low impedance for the mains frequency.
- 10 8. Driver according to claim 1, wherein the output branch (DE) comprises a transformer driving a rectifier.
9. Driver according to claim 1, further comprising a switch controller (140) adapted to generate control signals for controlling said two switches (131, 132) to either their  
15 conductive or their non-conductive state, the switch controller (140) being adapted to drive the two switches with a combination of frequency modulation (FM) and pulse width modulation (PWM).
10. Driver according to claim 9, wherein the switch controller (140) is adapted to  
20 set the switching frequency of the two switches (131, 132) such as to obtain a certain desired lamp current, and to set the duty cycle of the switches such as to obtain a certain desired mains current.
11. Driver according to claim 10, wherein the switch controller (140) is adapted to  
25 maintain a fixed switching frequency.
12. Driver according to claim 10, wherein the switch controller (140) is adapted to set a common switching frequency for the two switches (131, 132) and to set individual duty cycles for the two switches (131, 132).
- 30 13. Driver according to claim 1, wherein the boost converter (110) comprises at least one photo-voltaic cell (111), a boost inductor (112) having one terminal coupled to an output of the photo-voltaic cell (111) and having its other terminal coupled to a first terminal

of a rectifying element (114), the rectifying element having an output terminal coupled to the output (115) of the boost converter (110).

14. Driver according to claim 13, wherein the boost converter (110) further  
5 comprises an additional controllable switch (113) connected between on the one hand a node A between the boost inductor (112) and the rectifying element (114) and on the other hand the second reference node (mass).